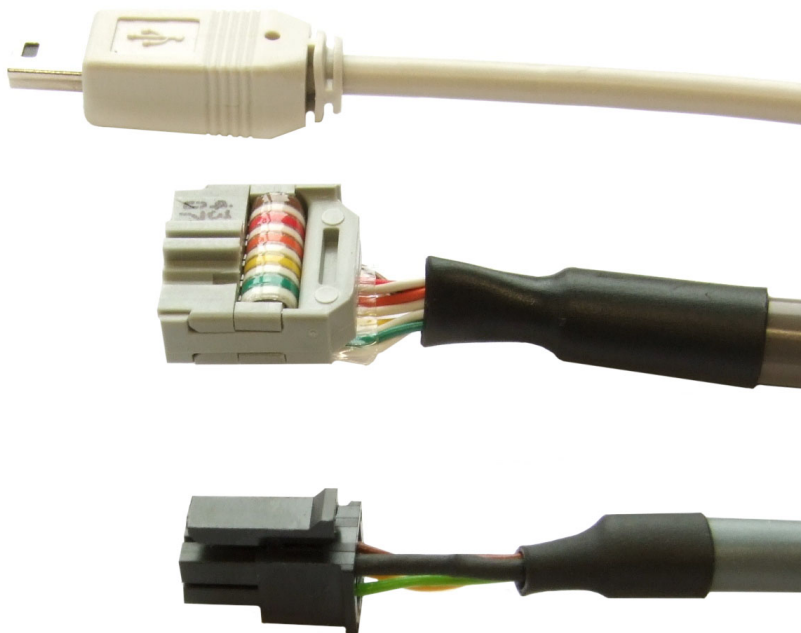


# EPOS<sup>2</sup> 70/10

Positioning Controller

Cable Starting Set



[epos.maxonmotor.com](https://epos.maxonmotor.com)

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### READ THIS FIRST

*These instructions are intended for qualified technical personnel. Prior commencing with any activities...*

- *you must carefully read and understand this manual and*
- *you must follow the instructions given therein.*

**The EPOS2 70/10 is considered as partly completed machinery according to EU Directive 2006/42/EC, Article 2, Clause (g) and is intended to be incorporated into or assembled with other machinery or other partly completed machinery or equipment.**

*Therefore, you must not put the device into service,...*

- *unless you have made completely sure that the other machinery fully complies with the EU directive's requirements!*
- *unless the other machinery fulfills all relevant health and safety aspects!*
- *unless all respective interfaces have been established and fulfill the herein stated requirements!*

## 1 ABOUT THIS DOCUMENT

### 1.1 Intended Purpose

The purpose of the present document is to familiarize you with the described equipment and the tasks on safe and adequate installation and/or commissioning.

Observing the described instructions in this document will help you ...

- to avoid dangerous situations,
- to keep installation and/or commissioning time at a minimum and
- to increase reliability and service life of the described equipment.

Use for other and/or additional purposes is not permitted. maxon motor, the manufacturer of the equipment described, does not assume any liability for loss or damage that may arise from any other and/or additional use than the intended purpose.

### 1.2 Target Audience

This document is meant for trained and skilled personnel working with the equipment described. It conveys information on how to understand and fulfill the respective work and duties.

This document is a reference book. It does require particular knowledge and expertise specific to the equipment described.

### 1.3 How to use

Take note of the following notations and codes which will be used throughout the document.

| Notation | Explanation                                                  |
|----------|--------------------------------------------------------------|
| (n)      | referring to an item (such as order number, list item, etc.) |
| ➔        | denotes "see", "see also", "take note of" or "go to"         |

Table 1-1      Notations used in this Document

## 1.4 Symbols and Signs

In the course of the present document, the following symbols and signs will be used.

| Type              | Symbol                                                                                         | Meaning                                                   |                                                                                                                                              |
|-------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Safety Alert      | <br>(typical) | DANGER                                                    | Indicates an <b>imminent hazardous situation</b> . If not avoided, it <b>will result in death or serious injury</b> .                        |
|                   |                                                                                                | WARNING                                                   | Indicates a <b>potential hazardous situation</b> . If not avoided, it <b>can result in death or serious injury</b> .                         |
|                   |                                                                                                | CAUTION                                                   | Indicates a <b>probable hazardous situation</b> or calls the attention to unsafe practices. If not avoided, it <b>may result in injury</b> . |
| Prohibited Action | <br>(typical) | Indicates a dangerous action. Hence, <b>you must not!</b> |                                                                                                                                              |
| Mandatory Action  | <br>(typical) | Indicates a mandatory action. Hence, <b>you must!</b>     |                                                                                                                                              |
| Information       |             | Requirement / Note / Remark                               | Indicates an activity you must perform prior continuing, or gives information on a particular item you need to observe.                      |
|                   |             | Best Practice                                             | Indicates an advice or recommendation on the easiest and best way to further proceed.                                                        |
|                   |             | Material Damage                                           | Indicates information particular to possible damage of the equipment.                                                                        |

Table 1-2 Symbols & Signs

## 1.5 Trademarks and Brand Names

For easier legibility, registered brand names are listed below and will not be further tagged with their respective trademark. It must be understood that the brands (the below list is not necessarily concluding) are protected by copyright and/or other intellectual property rights even if their legal trademarks are omitted in the later course of this document.

| The brand name(s) ...       | ... is/are a registered trademark(s) of ... |
|-----------------------------|---------------------------------------------|
| Micro-Fit™<br>Mini-Fit Jr.™ | © Molex, USA-Lisle, IL                      |

Table 1-3 Brand Names and Trademark Owners

## 1.6 Copyright

© 2025 maxon. All rights reserved. Any use, in particular reproduction, editing, translation, and copying, without prior written approval is not permitted (contact: maxon international Ltd., Brünigstrasse 220, CH-6072 Sachseln, +41 41 666 15 00, www.maxongroup.com). Infringements will be prosecuted under civil and criminal law. The mentioned trademarks belong to their respective owners and are protected under trademark laws. Subject to change without prior notice.

CCMC | EPOS2 70/10 Cable Starting Set | Edition 2025-07 | DocID rel13164

## 2 INTRODUCTION

The present document provides you with information on the wiring details for each cable which will be used with the EPOS2 70/10 hardware. It contains pictures, drawings, cable specification, pin assignment and detailed connector information. The included «Cable Selector» will help you to choose the correct cable for the setup you are using.

Find the latest edition of the present document, as well as additional documentation and software to the EPOS2 70/10 Positioning Controller also on the Internet: → [www.maxonmotor.com](http://www.maxonmotor.com)

### 2.1 Documentation Structure

The present document is part of a documentation set. Please find below an overview on the documentation hierarchy and the interrelationship of its individual parts:

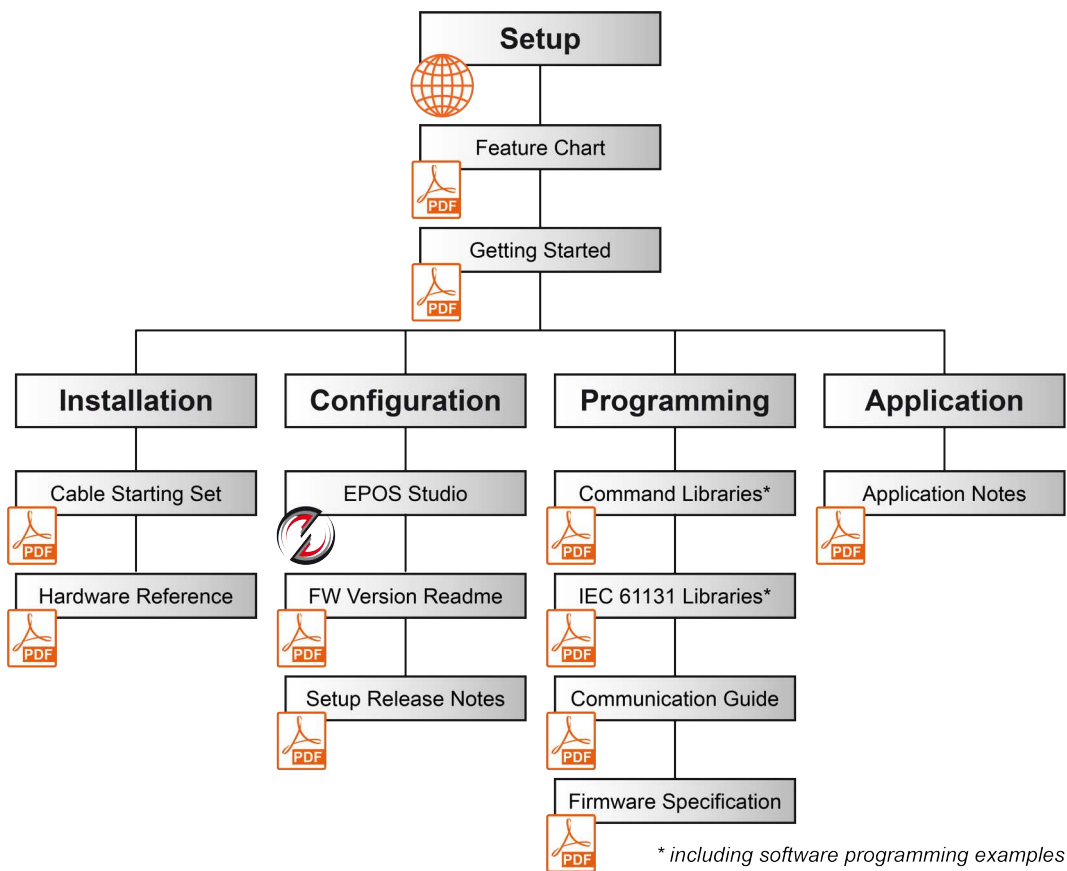


Figure 2-1 Documentation Structure

## 2.2 Safety Precautions

Prior continuing ...

- make sure you have read and understood Chapter “ PLEASE READ THIS FIRST” on page A-2,
- do not engage with any work unless you possess the stated skills (→Chapter “1.2 Target Audience” on page 1-3),
- refer to Chapter “1.4 Symbols and Signs” on page 1-4 to understand the subsequently used indicators,
- you must observe any regulation applicable in the country and/or at the site of implementation with regard to health and safety/accident prevention and/or environmental protection,
- take note of the subsequently used indicators and follow them at all times.



### DANGER

#### **High Voltage and/or Electrical Shock**

##### ***Touching live wires causes death or serious injuries!***

- *Consider any power cable as connected to live power, unless having proven the opposite!*
- *Make sure that neither end of cable is connected to live power!*
- *Make sure that power source cannot be engaged while work is in process!*
- *Obey lock-out/tag-out procedures!*
- *Make sure to securely lock any power engaging equipment against unintentional engagement and tag with your name!*



#### **Requirements**

- *Make sure that all associated devices and components are installed according to local regulations.*
- *Be aware that, by principle, an electronic apparatus can not be considered fail-safe. Therefore, you must make sure that any machine/apparatus has been fitted with independent monitoring and safety equipment. If the machine/apparatus should break down, if it is operated incorrectly, if the control unit breaks down or if the cables break or get disconnected, etc., the complete drive system must return – and be kept – in a safe operating mode.*
- *Be aware that you are not entitled to perform any repair on components supplied by maxon motor.*



#### **Electrostatic Sensitive Device (ESD)**

- *Make sure to wear working cloth in compliance with ESD.*
- *Handle device with extra care.*

3 CABLES

3.1 Important Notice: Prerequisites for Permission to commence Installation

The EPOS2 70/10 is considered as partly completed machinery according to EU directive 2006/42/EC, Article 2, Clause (g) and therefore **is only intended to be incorporated into or assembled with other machinery or other partly completed machinery or equipment.**



WARNING

**Risk of Injury**

**Operating the device without the full compliance of the surrounding system with EU directive 2006/42/EC may cause serious injuries!**

- Do not operate the device, unless you have made sure that the other machinery fulfills the requirements stated in the EU directive!
- Do not operate the device, unless the surrounding system fulfills all relevant health and safety aspects!
- Do not operate the device, unless all respective interfaces have been established and fulfill the stated requirements!

3.2 Tools

If you should decide not to use the ready-made cable assemblies, we strongly recommended to employ the following hand tools.

| Tools   |                                 |
|---------|---------------------------------|
| Crimper | Molex hand crimper (63819-0000) |
|         | Molex hand crimper (63819-0900) |

Table 3-4 Recommended Tools

### 3.3 Cable Selector

Use the following table to find the matching cables for the maxon motor variant and type of equipment you will be using:

| Cable                                                                                     |         |           | Motor                                       |                                             | Communication |       |     |
|-------------------------------------------------------------------------------------------|---------|-----------|---------------------------------------------|---------------------------------------------|---------------|-------|-----|
| Designation                                                                               | Order # | Connector | DC motor with separated motor/encoder cable | EC motor with separated motor/encoder cable | USB           | RS232 | CAN |
| Power Cable                                                                               | 275829  | J1        | X                                           | X                                           |               |       |     |
| Power Cable                                                                               | 275829  | J1A       | L                                           | L                                           |               |       |     |
| Motor Cable                                                                               | 275851  | J2        | X                                           | X                                           |               |       |     |
| Hall Sensor Cable                                                                         | 275878  | J3        |                                             | X                                           |               |       |     |
| Encoder Cable                                                                             | 275934  | J4        | X                                           | X                                           |               |       |     |
| Signal Cable 16core                                                                       | 275932  | J5        | O                                           | O                                           |               |       |     |
| Signal Cable 6x2core                                                                      | 300586  | J5A       | O                                           | O                                           |               |       |     |
| Signal Cable 3x2core                                                                      | 378173  | J5B       | O                                           | O                                           |               |       |     |
| RS232-COM Cable                                                                           | 275900  | J6        |                                             |                                             |               | X     |     |
| USB Type A - mini B Cable                                                                 | 370513  | J9        |                                             |                                             | X             |       |     |
| CAN-CAN Cable                                                                             | 275926  | J7/8      |                                             |                                             |               |       | O   |
| CAN-COM Cable                                                                             | 275908  | J7/8      |                                             |                                             |               |       | X   |
| <b>Legend:</b><br>X = required<br>O = optional<br>L = with independent logic power supply |         |           |                                             |                                             |               |       |     |

Table 3-5 Cable Selector

## 3.4 Cable Assemblies

### 3.4.1 Power Cable (275829) – Connector J1 / J1A

Head A

Head B



Figure 3-2 Power Cable

| Technical Data      |                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------|
| Cable cross-section | 2 x 0.75 mm <sup>2</sup>                                                                          |
| Length              | 3 m                                                                                               |
| Head A              | Molex Mini-Fit Jr. 2 poles (39-01-2020)<br>Molex Mini-Fit Jr. female crimp terminals (44476-xxxx) |
| Head B              | Cable end sleeves 0.75 mm <sup>2</sup>                                                            |

Table 3-6 Power Cable – Technical Data

| Wire  | Head A Pin | Head B Pin | Twisted Pair | Signal           | Description                           |
|-------|------------|------------|--------------|------------------|---------------------------------------|
| black | 1          | –          | –            | Power_Gnd        | Ground of supply voltage              |
| black | 2          | +          | –            | +V <sub>CC</sub> | Power supply voltage<br>+11...+70 VDC |

Table 3-7 Power Cable – Pin Assignment (regular Power Supply, J1)

| Wire  | Head A Pin | Head B Pin | Twisted Pair | Signal          | Description                           |
|-------|------------|------------|--------------|-----------------|---------------------------------------|
| black | 1          | –          | –            | Power_Gnd       | Ground of logic supply voltage        |
| black | 2          | +          | –            | +V <sub>C</sub> | Logic supply voltage<br>+11...+70 VDC |

Table 3-8 Power Cable – Pin Assignment (independent Logic Supply, J1A)

3.4.2 Motor Cable (275851) – Connector J2

Head A

Head B

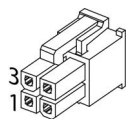


Figure 3-3 Motor Cable

| Technical Data      |                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------|
| Cable cross-section | 3 x 0.75 mm <sup>2</sup> shielded                                                                 |
| Length              | 3 m                                                                                               |
| Head A              | Molex Mini-Fit Jr. 4 poles (39-01-2040)<br>Molex Mini-Fit Jr. female crimp terminals (44476-xxxx) |
| Head B              | Cable end sleeves 0.75 mm <sup>2</sup>                                                            |

Table 3-9 Motor Cable – Technical Data

| Wire  | Head A Pin | Head B Pin | Twisted Pair | Signal                        | Description                              |
|-------|------------|------------|--------------|-------------------------------|------------------------------------------|
| white | 1          |            | –            | Motor winding 1<br>Motor (+M) | EC motor: Winding 1<br>DC motor: Motor + |
| brown | 2          |            | –            | Motor winding 2<br>Motor (–M) | EC motor: Winding 2<br>DC motor: Motor – |
| green | 3          |            | –            | Motor winding 3               | EC motor: Winding 3                      |
| black | 4          |            | –            | Motor shield                  | Cable shield                             |

Table 3-10 Motor Cable – Pin Assignment, J2



**Note**

For EMC-compliant installation, the cable shield should be connected to the motor housing.

### 3.4.3 Hall Sensor Cable (275878) – Connector J3

Head A

Head B



Figure 3-4 Hall Sensor Cable

| Technical Data      |                                                                                                      |
|---------------------|------------------------------------------------------------------------------------------------------|
| Cable cross-section | 5 x 0.14 mm <sup>2</sup> shielded                                                                    |
| Length              | 3 m                                                                                                  |
| Head A              | Molex Micro-Fit 3.0 6 poles (430-25-0600)<br>Molex Micro-Fit 3.0 female crimp terminals (43030-xxxx) |
| Head B              | Cable end sleeves 0.14 mm <sup>2</sup>                                                               |

Table 3-11 Hall Sensor Cable – Technical Data

| Wire   | Head A Pin | Head B Pin | Twisted Pair | Signal             | Description                                  |
|--------|------------|------------|--------------|--------------------|----------------------------------------------|
| green  | 1          |            | –            | Hall sensor 1      | Hall sensor 1 input                          |
| brown  | 2          |            | –            | Hall sensor 2      | Hall sensor 2 input                          |
| white  | 3          |            | –            | Hall sensor 3      | Hall sensor 3 input                          |
| yellow | 4          |            | –            | GND                | Ground of Hall sensor supply                 |
| grey   | 5          |            | –            | +V <sub>Hall</sub> | Hall sensor supply voltage<br>+5 VDC / 30 mA |
| black  | 6          |            | –            | Hall shield        | Cable shield                                 |

Table 3-12 Hall Sensor Cable – Pin Assignment, J3



**Note**  
For EMC-compliant installation, the cable shield should be connected to the motor housing.

3.4.4 Encoder Cable (275934) – Connector J4



Figure 3-5 Encoder Cable

| Technical Data      |                                                                         |
|---------------------|-------------------------------------------------------------------------|
| Cable cross-section | 10 x AWG28, round-jacket, twisted pair flat cable, pitch 1.27 mm        |
| Length              | 3.20 m                                                                  |
| Head A              | DIN 41651 female connector, pitch 2.54 mm, 10 poles, plug strain relief |
| Head B              | DIN 41651 Plug, pitch 2.54 mm, 10 poles, plug strain relief             |

Table 3-13 Encoder Cable – Technical Data

| Wire   | Head A Pin | Head B Pin | Twisted Pair | Signal          | Description            |
|--------|------------|------------|--------------|-----------------|------------------------|
| brown  | 1          | 1          | 1            | not connected   |                        |
| white  | 2          | 2          |              | +5 VDC / 100 mA | Encoder supply voltage |
| red    | 3          | 3          | 2            | GND             | Ground                 |
| white  | 4          | 4          |              | not connected   |                        |
| orange | 5          | 5          | 3            | Channel A\      | Channel A complement   |
| white  | 6          | 6          |              | Channel A       | Channel A              |
| yellow | 7          | 7          | 4            | Channel B\      | Channel B complement   |
| white  | 8          | 8          |              | Channel B       | Channel B              |
| green  | 9          | 9          | 5            | Channel I\      | Index complement       |
| white  | 10         | 10         |              | Channel I       | Index                  |

Table 3-14 Encoder Cable – Pin Assignment, J4



#### Note

Encoder Cable head B. The pin out suits, for example:

- maxon digital MR Encoder type ML, L all with Line Driver
- maxon digital encoder HEDL 55\_ with Line Driver RS 422

3.4.5 Signal Cable 16core (275932) – Connector J5



Figure 3-6 Signal Cable 16core

| Technical Data      |                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------|
| Cable cross-section | 16 x 0.14 mm <sup>2</sup>                                                                             |
| Length              | 3 m                                                                                                   |
| Head A              | Molex Micro-Fit 3.0 16 poles (430-25-1600)<br>Molex Micro-Fit 3.0 female crimp terminals (43030-xxxx) |
| Head B              | Cable end sleeves 0.14 mm <sup>2</sup>                                                                |

Table 3-15 Signal Cable 16core – Technical Data

| Wire             | Head A Pin | Head B Pin | Twisted Pair | Signal     | Description                                                      |
|------------------|------------|------------|--------------|------------|------------------------------------------------------------------|
| white            | 1          |            | –            | IN_COM2    | Common signal 2 for DigIN4...6                                   |
| brown            | 2          |            | –            | IN_COM1    | Common signal 1 for DigIN1...3                                   |
| green            | 3          |            | –            | DigIN6     | Digital input 6 "Negative Limit Switch"                          |
| yellow           | 4          |            | –            | DigIN5     | Digital input 5 "Positive Limit Switch"                          |
| grey             | 5          |            | –            | DigIN4     | Digital input 4 "Home Switch"                                    |
| pink             | 6          |            | –            | DigIN3     | Digital input 3 "General Purpose"                                |
| blue             | 7          |            | –            | DigIN2     | Digital input 2 "General Purpose"                                |
| red              | 8          |            | –            | DigIN1     | Digital input 1 "General Purpose"                                |
| black            | 9          |            | –            | +V Opto IN | External supply input voltage for Digital Outputs (+12...24 VDC) |
| violet           | 10         |            | –            | DigOUT4    | Digital output 4 "Brake"                                         |
| grey/pink        | 11         |            | –            | DigOUT3    | Digital output 3 "General Purpose"                               |
| red/blue         | 12         |            | –            | DigOUT2    | Digital output 2 "General Purpose"                               |
| white/<br>green  | 13         |            | –            | DigOUT1    | Digital output 1 "General Purpose"                               |
| brown/<br>green  | 14         |            | –            | DigOUT_Gnd | Digital OUT ground reference to "+V Opto IN"                     |
| white/<br>yellow | 15         |            | –            | DigIN11    | Digital input 11 "Power Stage Enable"                            |
| yellow/<br>brown | 16         |            | –            | IN_COM3    | Common signal 3 for DigIN11                                      |

Table 3-16 Signal Cable 16core – Pin Assignment, J5

### 3.4.6 Signal Cable 6x2core (300586) – Connector J5A

Head A

Head B



Figure 3-7 Signal Cable 6x2core

| Technical Data      |                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------|
| Cable cross-section | 6 x 2 x 0.14 mm <sup>2</sup>                                                                          |
| Length              | 3.00 m                                                                                                |
| Head A              | Molex Micro-Fit 3.0 12 poles (430-25-1200)<br>Molex Micro-Fit 3.0 female crimp terminals (43030-xxxx) |
| Head B              | Cable end sleeves 0.14 mm <sup>2</sup>                                                                |

Table 3-17 Signal Cable 6x2core – Technical Data

| Wire      | Head A Pin | Head B Pin | Twisted Pair | Signal  | Description                                                   |
|-----------|------------|------------|--------------|---------|---------------------------------------------------------------|
| white     | 1          |            | 1            | +5VOUT  | Reference output voltage +5 V                                 |
| brown     | 2          |            |              | A_Gnd   | Analog signal ground                                          |
| green     | 3          |            | 2            | AnIN2–  | Negative analog signal input 2                                |
| yellow    | 4          |            |              | AnIN2+  | Positive analog signal input 2                                |
| grey      | 5          |            | 3            | AnIN1–  | Negative analog signal input 1                                |
| pink      | 6          |            |              | AnIN1+  | Positive analog signal input 1                                |
| blue      | 7          |            | 4            | D_GND   | Digital signal ground                                         |
| red       | 8          |            |              | D_GND   | Digital signal ground                                         |
| black     | 9          |            | 5            | DigIN8/ | Digital input 8 “High Speed Command” complement or cos– input |
| violet    | 10         |            |              | DigIN8  | Digital input 8 “High Speed Command” or cos+ input            |
| grey/pink | 11         |            | 6            | DigIN7/ | Digital input 7 “High Speed Command” complement or sin– input |
| red/blue  | 12         |            |              | DigIN7  | Digital input 7 “High Speed Command” or sin+ input            |

Table 3-18 Signal Cable 6x2core – Pin Assignment, J5A

### 3.4.7 Signal Cable 3x2core (378173) – Connector J5B

Head A

Head B



Figure 3-8 Signal Cable 3x2core

| Technical Data      |                                                                                                      |
|---------------------|------------------------------------------------------------------------------------------------------|
| Cable cross-section | 3 x 2 x 0.14 mm <sup>2</sup> , twisted pair                                                          |
| Length              | 3.00 m                                                                                               |
| Head A              | Molex Micro-Fit 3.0 6 poles (430-25-0600)<br>Molex Micro-Fit 3.0 female crimp terminals (43030-xxxx) |
| Head B              | Cable end sleeves 0.14 mm <sup>2</sup>                                                               |

Table 3-19 Signal Cable 3x2core – Technical Data

| Wire   | Head A Pin | Head B Pin | Twisted Pair | Signal            | Description                                     |
|--------|------------|------------|--------------|-------------------|-------------------------------------------------|
| white  | 1          |            | 1            | DigIN9/           | Digital input 9 “High Speed Command” complement |
| brown  | 2          |            |              | DigIN9            | Digital input 9 “High Speed Command”            |
| green  | 3          |            | 2            | DigOUT5/          | Digital output 5 “High Speed Output” complement |
| grey   | 4          |            | 3            | +V <sub>AUX</sub> | Auxiliary output voltage<br>+5 VDC / 150 mA     |
| pink   | 5          |            |              | D_GND             | Digital signal ground                           |
| yellow | 6          |            | 2            | DigOUT5           | Digital output 5 “High Speed Output”            |

Table 3-20 Signal Cable 3x2core – Pin Assignment, J5B

### 3.4.8 RS232-COM Cable (275900) – Connector J6

Head A

Head B



Figure 3-9 RS232-COM Cable

| Technical Data      |                                                                                                      |
|---------------------|------------------------------------------------------------------------------------------------------|
| Cable cross-section | 2 x 2 x 0.14 mm <sup>2</sup> , twisted pair, shielded                                                |
| Length              | 3 m                                                                                                  |
| Head A              | Molex Micro-Fit 3.0 6 poles (430-25-0600)<br>Molex Micro-Fit 3.0 female crimp terminals (43030-xxxx) |
| Head B              | Female D-Sub connector DIN 41652, 9 poles, with mounting screws                                      |

Table 3-21 RS232-COM Cable – Technical Data

| Wire                                                         | Head A Pin | Head B Pin | Twisted Pair | Signal   | Description                                 |
|--------------------------------------------------------------|------------|------------|--------------|----------|---------------------------------------------|
| yellow                                                       | 1          | 3          | 1            | EPOS RxD | EPOS RS232 receive                          |
| white                                                        | 2          | 2          | 2            | EPOS TxD | EPOS RS232 transmit                         |
| green                                                        | 4          | 5          | 1            | GND      | RS232 ground                                |
| brown                                                        | 5          | 5          | 2            | GND      | RS232 ground                                |
| black                                                        | 6          | –          | –            | Shield   | Cable shield                                |
| –                                                            | –          | Housing    | –            | Shield   | Cable shield, soldered to connector housing |
| <b>Remark:</b><br>pin assignment according to RS232 Standard |            |            |              |          |                                             |

Table 3-22 RS232-COM Cable – Pin Assignment, J6

### 3.4.9 USB Type A - mini B Cable (370513) – Connector J9

Head A

Head B



Figure 3-10 USB Type A - mini B Cable

| Technical Data      |                                                                                                                                                                                                                                 |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cable cross-section | 1 x 28 AWG non-twisted power pair / 1 x 28 AWG twisted data pair, aluminum-metallized polyester inner shield, 28 AWG stranded tinned copper drain wire, > 65%, tinned copper wire interwoven (braided) outer shield, PVC jacket |
| Length              | 3 m                                                                                                                                                                                                                             |
| Head A              | USB Type mini B, male                                                                                                                                                                                                           |
| Head B              | USB Type A, male                                                                                                                                                                                                                |

Table 3-23 USB Type A - mini B Cable – Technical Data

| Wire                                                           | Head A Pin | Head B Pin | Twisted Pair | Signal           | Description                                 |
|----------------------------------------------------------------|------------|------------|--------------|------------------|---------------------------------------------|
| red                                                            | 1          | 1          | –            | V <sub>BUS</sub> | USB BUS supply voltage input +5 VDC         |
| white                                                          | 2          | 2          | 1            | D–               | USB Data–                                   |
| green                                                          | 3          | 3          |              | D+               | USB Data+                                   |
| –                                                              | 4          | –          | –            | ID               | not connected                               |
| black                                                          | 5          | 4          | –            | GND              | USB_Ground                                  |
| Jacket                                                         | Shield     | Shield     | –            | Cable shield     | Cable shield, soldered to connector housing |
| <b>Remark:</b><br>pin assignment according to USB 2.0 standard |            |            |              |                  |                                             |

Table 3-24 USB Type A - mini B Cable – Pin Assignment, J9

3.4.10 CAN-COM Cable (275908) – Connector J7 or J8

Head A

Head B



Figure 3-11 CAN-COM Cable

| Technical Data      |                                                                                                      |
|---------------------|------------------------------------------------------------------------------------------------------|
| Cable cross-section | 2 x 2 x 0.14 mm <sup>2</sup> , twisted pair, shielded                                                |
| Length              | 3 m                                                                                                  |
| Head A              | Molex Micro-Fit 3.0 4 poles (430-25-0400)<br>Molex Micro-Fit 3.0 female crimp terminals (43030-xxxx) |
| Head B              | Female D-Sub connector DIN 41652, 9 poles, with mounting screws                                      |

Table 3-25 CAN-COM Cable – Technical Data

| Wire                                                      | Head A Pin | Head B Pin | Twisted Pair | Signal     | Description       |
|-----------------------------------------------------------|------------|------------|--------------|------------|-------------------|
| yellow                                                    | 1          | 7          | 1            | CAN high   | CAN high bus line |
| green                                                     | 2          | 2          |              | CAN low    | CAN low bus line  |
| brown                                                     | 3          | 3          | –            | CAN GND    | CAN ground        |
| black                                                     | 4          | 5          | –            | CAN shield | Cable shield      |
| <b>Remark:</b><br>pin assignment according to CiA DS102-2 |            |            |              |            |                   |

Table 3-26 CAN-COM Cable – Pin Assignment, J7/8

3.4.11 CAN-CAN Cable (275926) – Connector J7 or J8

Head A

Head B



Figure 3-12 CAN-CAN Cable

| Technical Data      |                                                                                                      |
|---------------------|------------------------------------------------------------------------------------------------------|
| Cable cross-section | 2 x 2 x 0.14 mm <sup>2</sup> , twisted pair, shielded                                                |
| Length              | 3 m                                                                                                  |
| Head A / Head B     | Molex Micro-Fit 3.0 4 poles (430-25-0400)<br>Molex Micro-Fit 3.0 female crimp terminals (43030-xxxx) |

Table 3-27 CAN-CAN Cable – Technical Data

| Wire   | Head A Pin | Head B Pin | Twisted Pair | Signal     | Description       |
|--------|------------|------------|--------------|------------|-------------------|
| yellow | 1          | 1          | 1            | CAN high   | CAN high bus line |
| green  | 2          | 2          |              | CAN low    | CAN low bus line  |
| brown  | 3          | 3          | –            | CAN GND    | CAN ground        |
| black  | 4          | 4          | –            | CAN shield | Cable shield      |

Table 3-28 CAN-CAN Cable – Pin Assignment, J7/8

### 3.5 EPOS2 70/10 Connector Set (381405)

If you decide not to use the ready-made cable assemblies, you can take advantage of a prepackaged set containing all required connectors. The set contains following items:

| Connector     | Specification                                                    | Quantity |
|---------------|------------------------------------------------------------------|----------|
| J1 / J1A      | Molex Mini-Fit Jr. 2 poles (39-01-2020)                          | 2        |
| J2            | Molex Mini-Fit Jr. 4 poles (39-01-2040)                          | 1        |
| J3 / J5B / J6 | Molex Micro-Fit 3.0 6 poles (430-25-0600)                        | 3        |
| J5            | Molex Micro-Fit 3.0 16 poles (430-25-1600)                       | 1        |
| J5A           | Molex Micro-Fit 3.0 12 poles (430-25-1200)                       | 1        |
| J7 / J8       | Molex Micro-Fit 3.0 4 poles (430-25-0400)                        | 2        |
|               | Molex Mini-Fit Jr. female crimp terminal (44476-1111) AWG 20-18  | 10       |
|               | Molex Micro-Fit 3.0 female crimp terminal (43030-0010) AWG 30-26 | 55       |

Table 3-29 EPOS2 70/10 Connector Set – Content



#### **Best Practice**

*For best results use original manufacturer's tools (→Chapter "3.2 Tools" on page 3-7).*

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